

BEST AVAILABLE COPY

RECEIVED  
CENTRAL FAX CENTER

AUG 21 2006

REMARKS

In response to the Office Action dated May 19, 2006, Applicants respectfully request reconsideration based on the above claim amendment and the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 1-24 are pending. Claims 1 and 13 have been amended, and claims 9 and 21 have been canceled without prejudice, leaving claims 1-8, 10-20 and 22-24 pending upon entry of the present amendment. Support for the amendment can be found in the entire specification. No new matter has been added by the amendment.

*Claim Rejections Under 35 U.S.C. § 112*

The Examiner has rejected claims 7 and 19 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The Examiner states that it is indefinite if step 4'-3 is performed after step 4-3 or after a new dummy wafer is loaded on the wafer block. Applicants respectfully traverse for at least the reasons indicated below.

In claims 6 and 18, step 4'-3 is performed "during step 4-3" or "after step 4-3". In claims 7 and 19, step 4'-3 is performed only after step 4-3.

In claims 7 and 19, the sequence of "step 4-3", "step of a new dummy wafer being loaded on the wafer block," and "step 4'-3" is described as "when step 4'-3 is performed after step 4-3, step 4'-3 is performed after a new dummy wafer is loaded on the wafer block." That is, the sequence of the three steps is: ① step 4-3 → ② step of a new dummy wafer being loaded on the wafer block → ③ step 4'-3. Thus, this sequence is clearly evident as it is particularly pointed out in claims 7 and 19, and it is respectfully requested that the rejection thereto be withdrawn.

*Claim Rejections Under 35 U.S.C. § 103*

The Examiner has rejected claims 1-4, 7, 13-16 and 19 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Appl. Pub. No. 2002/0007790 to Park in view of U.S. Patent No. 5,997,649 to Hillman and U.S. Patent No. 6,274,500 to Xuechun et al. Applicants respectfully traverse for at least the reasons indicated below.

**BEST AVAILABLE COPY**

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996). However, neither Park in view of Hillman and Xuechun et al. teach or suggest the feature "adhering byproducts generated in step 4-3 to an inner surface of the reactor, wherein the adhering comprises: a first pre-coating step performed before the dummy wafer is loaded on the wafer block; and a second pre-coating step performed after the dummy wafer is loaded on the wafer block", as recited in amended independent claims 1 and 13.

More particularly, independent claim 1 has been amended to include the limitation of canceled claim 9, while independent 13 has been amended to include the limitations of canceled claim 21, thus rendering the rejection to claims 1 and 13 under 103(a) moot using Park in view of Hillman and Xuechun et al. Therefore, claims 1 and 13, including claims depending therefrom, i.e., claims 2-8, 10-20 and 22-24, define over Park in view of Hillman and Xuechun et al.

Claims 10 and 22 are rejected under 35 U.S.C. §103(a) as being unpatentable over Park in view of Hillman and Xuechun et al. as applied to claims 1 and 13 above, and further in view of U.S. Patent No. 6,720,259 to Lonergan et al. The Examiner states that Park in view of Hillman and Xuechun et al. does not teach that *the ALD thin film is formed of one selected from the group consisting of Al<sub>2</sub>O<sub>3</sub>, HfO<sub>2</sub>, and ZrO<sub>3</sub>*. The Examiner states that this element is disclosed in Column 3, Lines 53-64 of Lonergan et al. Applicants respectfully traverse for at least the reasons stated below.

The amended claims 1 and 13 include a pre-coating step of adhering byproducts generated in step 4-3 to an inner surface of the reactor, wherein the pre-coating step comprises: a first pre-coating step performed before the dummy wafer is loaded on the wafer block; and a second pre-coating step performed after the dummy wafer is loaded

**REST AVAIL ARI F CNDV**

on the wafer block.

Lonergan et al. discloses only a method of depositing a passivation layer on an interior reactor surface before depositing a film layer on a substrate to improve uniformity of a film layer deposited on a substrate. (See Abstract).

Lonergan et al. does not disclose the pre-coating step comprising two minor pre-coating steps, namely a first pre-coating step and a second pre-coating step, wherein the second pre-coating step is subsequent to the first pre-coating step. Also, Lonergan et al. does not disclose that the first pre-coating step is performed without a dummy wafer and the second pre-coating step is performed with a dummy wafer. The reasons that the first pre-coating step is performed without a dummy wafer and the second pre-coating step is performed with a dummy wafer are explained in detail in the specification of the present invention. Thus, the present invention is not obvious in view of Lonergan et al.

An aspect/feature of the present invention as in amended claims 1 and 13 is to eliminate particles generated in the cleaning process from the deposition process and enhancing the speed of depositing a thin film. However, an object of invention of Lonergan et al. is to improve the uniformity of a film layer deposited on a substrate. Thus, the aspects/features of the amended claims 1 and 13 and Lonergan et al. are totally different from each other.

In particular, neither Park in view of Hillman and Xuechun et al. as applied to claims 1 and 13 above, and further in view of Lonergan et al., teach or suggest "adhering byproducts generated in step 4-3 to an inner surface of the reactor, wherein the adhering comprises: a first pre-coating step performed before the dummy wafer is loaded on the wafer block; and a second pre-coating step performed after the dummy wafer is loaded on the wafer block", as recited in amended independent claims 1 and 13.

Therefore, claims 1 and 13, including claims depending therefrom, i.e., claims 2-8, 10-20 and 22-24, define over Park in view of Hillman and Xuechun et al. and in further view of Lonergan et al.

Claims 11, 12, 23 and 24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Park in view of Hillman and Xuechun et al. as applied to claims 1 and 13 above, and further in view of U.S. Patent Appl. Pub. No. 2004/0014327 to Ji et al. Applicants respectfully traverse for at least the reasons stated below.

**BEST AVAILABLE COPY**

As discussed above, neither Park in view of Hillman and Xuechun et al. teach or suggest the feature "adhering byproducts generated in step 4-3 to an inner surface of the reactor, wherein the adhering comprises: a first pre-coating step performed before the dummy wafer is loaded on the wafer block; and a second pre-coating step performed after the dummy wafer is loaded on the wafer block", as recited in amended independent claims 1 and 13. Further, it is respectfully submitted that Ji et al. does not cure this deficiency.

More particularly, independent claim 1 has been amended to include the limitation of canceled claim 9, while independent 13 has been amended to include the limitations of canceled claim 21, thus rendering the rejection to claims 1 and 13 under 103(a) moot using Park in view of Hillman and Xuechun et al. and in further view of Ji et al. Therefore, claims 1 and 13, including claims depending therefrom, i.e., claims 2-8, 10-20 and 22-24, define over Park in view of Hillman and Xuechun et al. and in further view of Ji et al.

Claims 5, 6, 8, 17, 18 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Park in view of Hillman and Xuechun et al. as applied to claims 1 and 13 above, and further in view of U.S. Patent No. 6,397,861 to Wing et al. Applicants respectfully traverse for at least the reasons stated below.

As discussed above, neither Park in view of Hillman and Xuechun et al. teach or suggest the feature "adhering byproducts generated in step 4-3 to an inner surface of the reactor, wherein the adhering comprises: a first pre-coating step performed before the dummy wafer is loaded on the wafer block; and a second pre-coating step performed after the dummy wafer is loaded on the wafer block", as recited in amended independent claims 1 and 13. Further, it is respectfully submitted that Wing et al. does not cure this deficiency.

More particularly, independent claim 1 has been amended to include the limitation of canceled claim 9, while independent 13 has been amended to include the limitations of canceled claim 21, thus rendering the rejection to claims 1 and 13 under 103(a) moot using Park in view of Hillman and Xuechun et al. and in further view of Wing et al. Therefore, claims 1 and 13, including claims depending therefrom, i.e., claims 2-8, 10-20 and 22-24, define over Park in view of Hillman and Xuechun et al. and in further view of Wing et al.

**BEST AVAILABLE COPY**

Claims 9 and 21 are rejected under 35 U.S.C. §103(a) as being unpatentable over Park in view of Hillman, Xuechen et al. and Wing et al. as applied to claims 1, 6, 13 and 18 above, and further in view of Londergan et al. The Examiner admits that Park in view of Hillman, Xuechen et al. and Wing et al. does not teach *a first pre-coating step performed before the dummy wafer is loaded on the wafer block and a second pre-coating step performed after the dummy wafer is loaded on the wafer block.* However, the Examiner states that these elements are disclosed in Column 2, Lines 58-61 of Londergan et al. Applicants respectfully traverse for at least the reasons stated below.

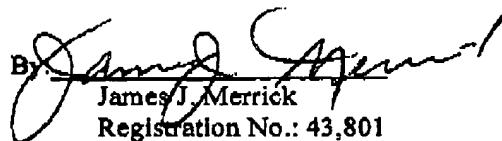
Claims 9 and 21 have been cancelled rendering any rejection thereto moot.

***Conclusion***

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested. If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Cantor Colburn LLP.

Respectfully submitted,

CANTOR COLBURN LLP

By:   
James J. Merrick  
Registration No.: 43,801  
Confirmation No. 5533  
CANTOR COLBURN LLP  
55 Griffin Road South  
Bloomfield, CT 06002  
Telephone (860) 286-2929  
Facsimile (860) 286-0115  
PTO Customer No. 23413

Date: August 21, 2006